Remote Server 16

RF Host Controller PC 10

Serial Comm. 13

15

18

RF Tag Reader 11

14

Prior Art

Figure 1, Current RF Reader Connection to a Service

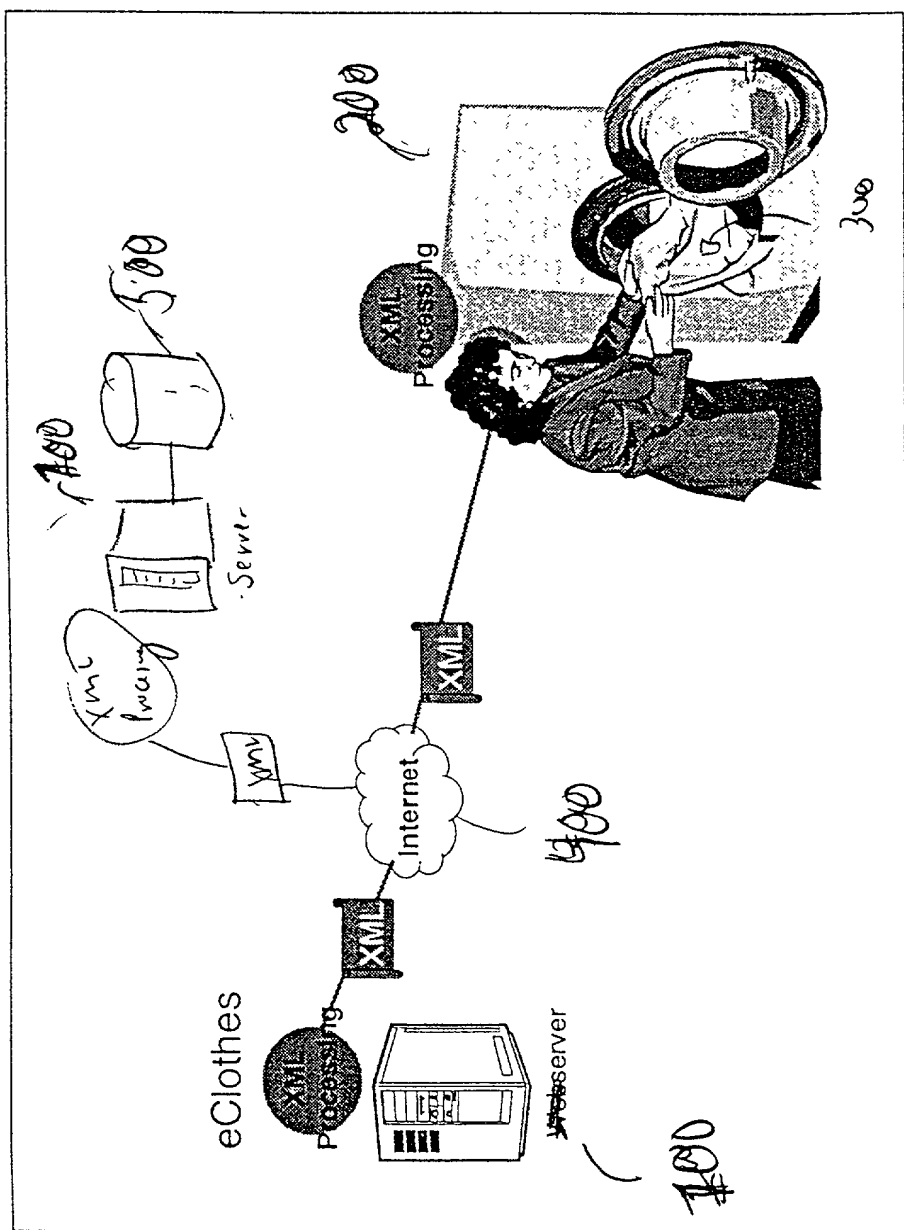Figure 2, Washing Machine enabled by the tag terminal

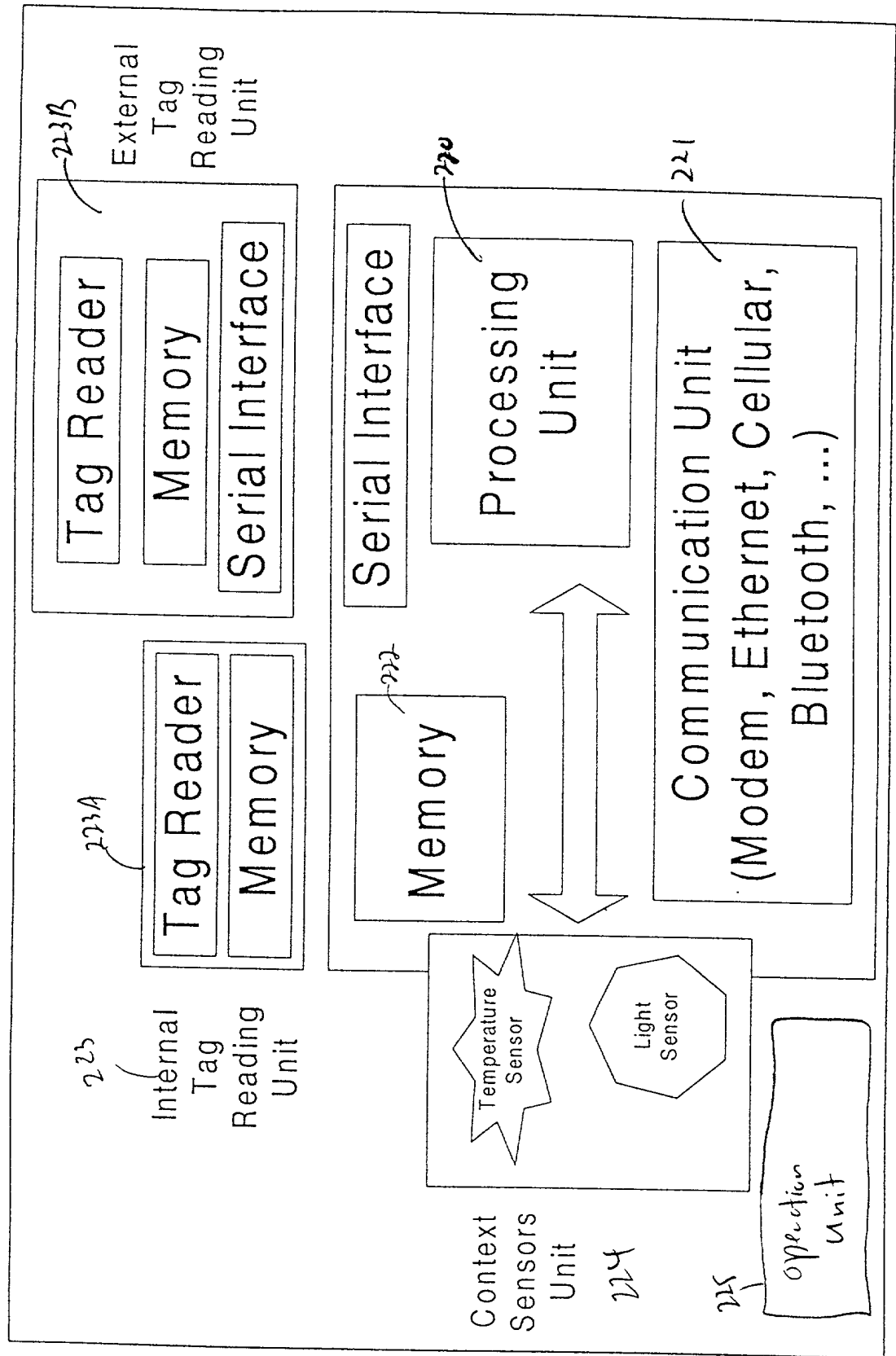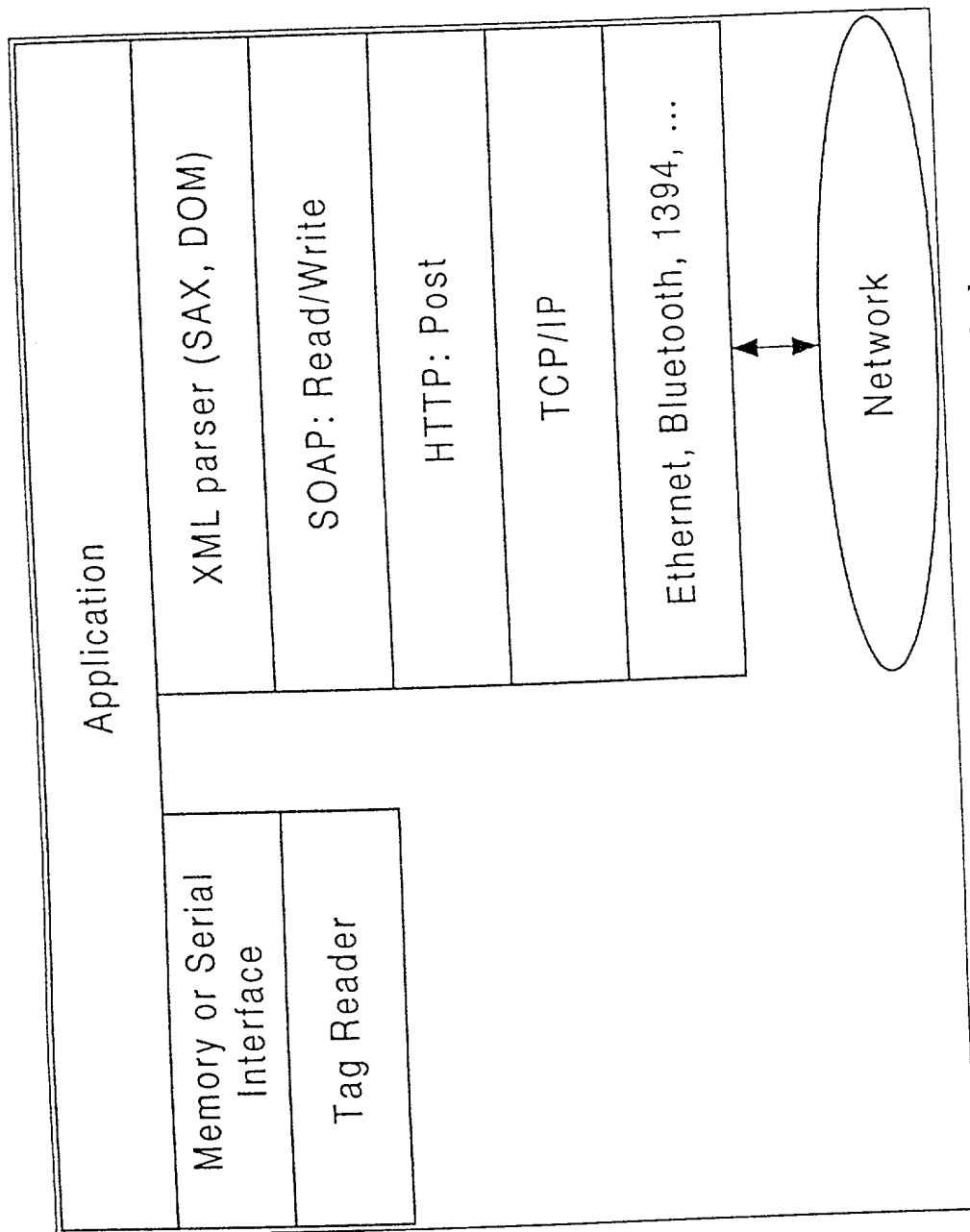Figure 3, ~~Hardware Design of Terminal~~

External Tag Reading Unit 223B

- Tag Reader
- Memory
- Serial Interface

220

Serial Interface

Processing Unit

Communication Unit 221
(Modem, Ethernet, Cellular, Bluetooth, ...)

Internal Tag Reading Unit 223

223A
- Tag Reader
- Memory

Memory 222

Context Sensors Unit 224
- Temperature Sensor
- Light Sensor

Operation Unit 225

Application

Memory or Serial
Interface

Tag Reader

XML parser (SAX, DOM)

SOAP: Read/Write

HTTP: Post

TCP/IP

Ethernet, Bluetooth, 1394, ...

Network

Figure 4, Communication Stacks for Terminal

```
POST /soap/servlet/rpcrouter HTTP/1.1        "⌐┌┬┴┼┤  ┴┌┬┴┘┌└┘
Connection: Keep-Alive
Host: http://www. PhilipsServiceRouter.com:8080
Content-type: text/xml
Content-length: 527
SOAPAction: ""

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsi="http://www.w3.org/1999/XMLSchema-instance" xmlns:xsd="http://www.w3.org/1999/XMLSchema">
<SOAP-ENV:Body>
<m: getWashingMachineSettings s xmlns:m=" http://www.PhilipsServiceRouter.com/soap/WashingMachineSetting"
SOAP-ENV:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
    <Reader>
        <Number> 1234567 </Number>
        <Manufacturer> Philips Semiconductor </Manufacturer>

    </Reader>
    <Garment>
        <RFTag xsi:type="xsd:string"> AC 7B 9C 00 00 00 00 01 </RFTag>
        <Owner xsi:type="xsd:string">Gap Clothes</Owner>

    </Garment>
    <Terminal>
        <Brand xsi:type="xsd:string">Whirlpool</Brand>
        <Model xsi:type=" xsd:string" >1510M</Model>

    </Terminal>
</m: getWashingMachineSettings >
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

Fig 5

HTTP/1.0 200 OK
Date: Wed, 13 Sep 2000 16:02:38 GMT
Status: 200
Set-Cookie2: JSESSIONID=To1075mC330082738500816At;Version=1;Discard;Path="/soap"
Servlet-Engine: Tomcat Web Server/3.1 (JSP 1.1; Servlet 2.2; Java 1.3.0; Windows
NT 4.0 x86; java.vendor=Sun Microsystems Inc.)
Set-Cookie: JSESSIONID=To1075mC330082738500816At;Path=/soap
Content-Type: text/xml; charset=UTF-8
Content-Length: 707
Content-Language: en

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsi="http://www.w3.org/1999/XMLSchema-instance" xmlns:xsd="http://www.w3.org/1999/XMLSchema">
    <SOAP-ENV:Body>
        <ns1:getWashingMachineSettings
xmlns:ns1="http://www.PhilipsServiceRouter.com/soap/WashingMachineSetting" SOAP-
ENV:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
<return xmlns:ns2="urn:Whirlpool-WashingMachine-Settings" xsi:type="ns2:WMResponse">
            <washing xsi:type="ns2:washing">
                <temprature xsi:type="xsd:int">150</temprature>
                <time xsi:type="xsd:int">20</time>
                <rpm xsi:type="xsd:int">120</rpm>
        ....
            </washing>
            <spinning xsi:type="ns2:spinning ">
                <time xsi:type="xsd:int">5</time>
                <rpm xsi:type="xsd:int">600</rpm>
        ....
            </spinning>
        </return>
        </ns1:getWashingMachineSettings>
    </SOAP-ENV:Body>
</SOAP-ENV:Envelope>>

Fig. 6